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# PATENT ABSTRACTS OF JAPAN

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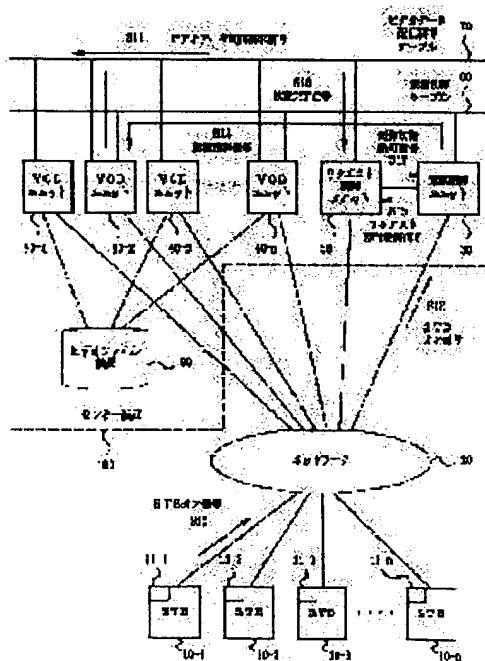
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**(54) ON-DEMAND SYSTEM CAPABLE OF CONTROLLING POWER ON/OFF OF ON-DEMAND SERVER**

(57)Abstract:

**PROBLEM TO BE SOLVED:** To provide an on-demand system capable of automatically controlling the power on/off of an on-demand server according to the number of active terminals.

**SOLUTION:** This system is provided with a center device 100 having plural terminals 10-1-10-n, plural on-demand servers 40-1-40-m, and a request control unit 50. The center device 100 is provided with a power control unit 30 for controlling the power on/off of the on-demand servers 40-1-40-m according to the number of the active terminals 10-1-10-n. The power control unit 30 is provided with a counter for counting the number of the active terminals 10-1-10-n, and a power control part for comparing the count value with a threshold value corresponding to the number of the active terminals 10-1-10-n and the number of the necessary on-demand servers 40-1-40-m, supplying a power to the on-demand servers 40-1-40-m.



40-m which should be activated again, and stopping power supply to the on-demand servers whose activation should be stopped.

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

#### [0001]

[Field of the Invention] This invention has two or more terminals and one pin center, large equipment, and this pin center, large equipment is related with the on-demand system which has the description especially in the control system of power-source turning on and off (injection cutting) of a server on demand about the on-demand system which has two or more servers on demand.

#### [0002]

[Description of the Prior Art] Typically, the on-demand system which has two or more terminals and one pin center, large equipment, and has the server of plurality [ equipment / this / pin center, large ] on demand is a video-on-demand (VOD) system. Generally in the field of this system, each of two or more terminals is called a set top box (STB). While terminal power is supplied, each STB will be in operating status and can transmit the request signal which requires video-on-demand service to pin center, large equipment at the time of operating status.

[0003] Each of two or more video-on-demand servers (VOD server) of pin center, large equipment is operating status while server power is supplied. Pin center, large equipment has a request control unit. When this request control unit receives a request signal from one of two or more of the STBs, distribution data are made to distribute to STB which transmitted the data distribution demand signal of the distribution data according to a request signal to one of the VOD servers in operating status, and transmitted the request signal to it one of the VOD servers.

[0004] An example of on-demand system is indicated by JP,7-327221,A. To the center sending-out equipment which controls playback and a halt of a VOD server from STB in this JP,7-327221,A The technique which halts the program under playback by sending out a halt signal and a halt discharge signal, or resumes playback, And when it is going to disconnect the power source of STB in the condition of having halted when halt time amount exceeds predetermined time by providing the timer for halt time supervision, and a power-source OFF supervisory circuit in STB, the technique which displays an alarm display on the screen of STB is indicated.

[0005] By the way, in on-demand system, such as the conventional VOD system, it is common for it not to be concerned with the number of STB which is working, but to always work all VOD servers. Moreover, power control of a VOD server is performed manually.

[0006] For this reason, according to the number of STBs which is working, power-source turning on and off (injection cutting) of a VOD server could not be controlled automatically, but there was futility in respect of operational administration and employment cost.

#### [0007]

[Problem(s) to be Solved by the Invention] As mentioned above, as for on-demand system, such as the conventional VOD system, it was common for it to have not been concerned with the number of STB which is working, but to always have worked all VOD servers, and since it was performing power control of a VOD server manually, it could not control automatically power-source turning on and off (injection cutting) of a VOD server according to the number of STBs which is working, but had futility

in respect of operational administration and employment cost.

[0008] Then, the purpose of this invention is to offer the on-demand system which can control automatically power-source turning on and off (injection cutting) of a server on demand according to the number of terminals which is working.

[0009] Moreover, other purposes of this invention are to offer the on-demand system which can also aim at reduction of employment cost while the operational administration of a server on demand becomes easy, and can also improve the dependability of a server on demand easily.

[0010]

[Means for Solving the Problem] This invention which attains the above-mentioned purpose has two or more terminals and one pin center, large equipment. Said pin center, large equipment has two or more servers on demand and request control units. The demand of the service on demand from said terminal is accepted. Said request control unit In the on-demand system which makes one of said two or more of the demanded terminals distribute the distribution data according to said demand to one of said the servers on demand in said operating status Said pin center, large equipment is equipped with the power control unit which performs power-source ON and off control of said server on demand according to the number of said terminal which is working. Said power control unit A count means to count down with the off signal transmitted from said terminal which counted up with the ON signal transmitted from said terminal which started operation, and stopped operation, By having a threshold according to the number of said terminal under operation, and the number of said required server on demand, and comparing said counted value and said threshold A power source is supplied to said server on demand which should newly work, and it is characterized by having a power control means to stop the current supply to said server on demand which should stop operation.

[0011] On-demand system by this invention of claim 2 is characterized by each of two or more of said terminals having a signal transmitting means to transmit said ON signal to said pin center, large equipment when supply of the power of said terminal is started, and to transmit said off signal to said pin center, large equipment when supply of said power is suspended.

[0012] On-demand system by this invention of claim 3 is characterized by said power control means sending out the current supply stop signal for suspending supply for power to said server on demand which should stop operation, if the current supply signal for supplying power to said server on demand which should newly work if said counted value reaches said threshold is sent out and said counted value is less than said threshold.

[0013] The on-demand system by this invention of claim 4 Said pin center, large equipment is connected to said two or more servers on demand, and it has file equipment which has memorized are recording data as file data. One of said the servers on demand in said operating status If said data distribution demand is received from said request control unit, it will be characterized by distributing to said terminal which required the distribution data which found said distribution data according to said demand out of the file data memorized by said file equipment.

[0014] The on-demand system by this invention of claim 5 Before said counted value reaches said threshold, said power control means Send out the notice signal which notifies said server on demand in a current working state to said request control unit, and said counted value reaches said threshold. When said server on demand is newly worked, it is characterized by sending out the notice signal which notifies said server on demand under [ all / containing said server on demand which newly worked ] operation to said request control unit.

[0015] On-demand system by this invention of claim 6 is characterized by said power control means sending out the instruction signal which forbids transmission of said data distribution demand to said server on demand which stopped operation to said request control unit, when said counted value is less than said threshold and stops operation of said server on demand.

[0016] The on-demand system by this invention of claim 7 When said counted value is less than said threshold, said power control means the instruction signal which forbids transmission of said data distribution demand to said server on demand which should stop operation It sends out to said request control unit. Said request control unit When the completion signal of processing which shows that the

distribution of said distribution data to all demands was completed is received from said server on demand which should stop operation The powering-off enabling signal with which a halt of supply of the power to said server on demand which should stop operation is permitted is sent out to said power control means. Said power control means If said powering-off enabling signal is obtained, it will be characterized by sending out the power supply interruption signal which suspends supply of the power to said server on demand which should stop operation.

[0017] The on-demand system by this invention of claim 8 Based on the number of said server [ required since said power control means corresponds to the number of the permissible capacity over said terminal per said server on demand, and said terminal which is working now as said threshold ] on demand, it has two or more values. First The threshold suitable for the number of said terminal in operating status and the number of the server on demand in the operating status corresponding to it is set up. If said threshold and counted value which were set up are compared and said counted value reaches said threshold when said count means counts up counted value the current supply signal for supplying power to said server on demand which should newly work is sent out -- both If the threshold and counted value at the time of reducing the number of a required server on demand by one are compared and said counted value is less than said threshold when said threshold is newly set up and said count means counts down counted value While sending out the current supply stop signal for suspending supply for power to said server on demand which should stop operation, it is characterized by setting said threshold as the threshold at the time of reducing the number of a required server on demand by one.

[0018] On-demand system by this invention of claim 9 is characterized by setting up the value which hung the number [ required for the value which lengthened the value which exists in order to give allowances as said threshold from the permissible capacity over said terminal per said server on demand since it corresponds to the number of said terminal which is working ] on demand.

[0019] The on-demand system by this invention of claim 10 Based on the number of said server [ required since said power control means corresponds to the number of the permissible capacity over said terminal per said server on demand, and said terminal which is working now as said threshold ] on demand, it has two or more values. First The threshold suitable for the number of said terminal in operating status and the number of the server on demand in the operating status corresponding to it is set up. If said threshold and counted value which were set up are compared and said counted value reaches said threshold when said count means counts up counted value the current supply signal for supplying power to said server on demand which should newly work is sent out -- both If the threshold and counted value at the time of reducing the number of a required server on demand by one are compared and said counted value is less than said threshold when said threshold is newly set up and said count means counts down counted value The instruction signal which forbids transmission of said data distribution demand to said server on demand which should stop operation is sent out to said request control unit. Said request control unit When the completion signal of processing which shows that the distribution of said distribution data to all demands was completed is received from said server on demand which should stop operation The powering-off enabling signal with which a halt of supply of the power to said server on demand which should stop operation is permitted is sent out to said power control means. Said power control means If said powering-off enabling signal is obtained, while sending out the power supply interruption signal which suspends supply of the power to said server on demand which should stop operation, it is characterized by setting said threshold as the threshold at the time of reducing the number of a required server on demand by one.

[0020] On-demand system by this invention of claim 11 is characterized by setting up the value which hung the number [ required for the value which lengthened the value which exists in order to give allowances as said threshold from the permissible capacity over said terminal per said server on demand since it corresponds to the number of said terminal which is working ] on demand.

[0021]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained to a detail with reference to a drawing.

[0022] Drawing 1 is the block diagram of the video-on-demand system by the gestalt of 1 operation of this invention.

[0023] In this invention, the number of the terminal which is in operating status beforehand, and the number of the server on demand in the operating status corresponding to it are computed. By making the power control unit recognize the information (threshold) servers on demand how many sets of must be working when the counted value of the number of the terminal in operating status is how many sets A power control unit controls automatically power-source turning on and off (injection cutting) of each server on demand by detecting a terminal ON signal and a terminal off signal, and counting the number of the terminal in operating status.

[0024] When drawing 1 is referred to, the video-on-demand (VOD) system by 1 operation gestalt of this invention has two or more terminals (STB) 10-1 - 10-n, and one pin center,large equipment 100. STB 10-1 - 10-n, and pin center,large equipment 100 are connected through the network 20.

[0025] Pin center,large equipment 100 has the 1st, the 2nd or the m-th video-on-demand (VOD) server 40-1, 40-2 - 40-m, and the request control unit 50.

[0026] While terminal power is supplied, each of STB 10-1 - 10-n will be in operating status, and can transmit the request signal which requires video-on-demand service at the time of operating status to pin center,large equipment 100. Each of the server 40-1 on demand, and 40-2 - 40-m is operating status while server power is supplied.

[0027] If the request control unit 50 receives said request signal from one of STB 10-1 - the 10-n To one of the VOD server 40-1 in operating status, and the 40-2 - 40-m The data distribution demand signal S11 of the distribution data according to said request signal is transmitted, and said one of STB 10-1 which transmitted said request signal - the 10-n is made to distribute said distribution data to said one of the VOD server 40-1, and the 40-2 - 40-m.

[0028] Typically, each of the VOD server 40-1, and 40-2 - 40-m is connected to the video-file equipment 80 which has memorized are recording data as file data. In this case, if said data distribution demand signal S11 is received, said one of the VOD server 40-1 in operating status, and the 40-2 - 40-m will find said distribution data according to said request signal out of the file data memorized by video-file equipment 80, and it will distribute the found distribution data to said one of STB 10-1 which transmitted said request signal - the 10-n.

[0029] If distribution data are received from the VOD server 40-1, and 40-2 - 40-m, STB 10-1 - 10-n will decode it, and will display it on a display.

[0030] Each of STB 10-1 - 10-n transmits the STB ON signal (terminal ON signal) S12 which shows initiation of supply of terminal power when supply of terminal power is started to pin center,large equipment 100. Furthermore, when supply of terminal power is suspended, it has the signal transmitting section 11-1 which transmits the STB off signal (terminal off signal) S13 which shows a halt of supply of terminal power to pin center,large equipment 100 - 11-n.

[0031] Pin center,large equipment 100 has the power control unit 30 further.

[0032] When drawing 1 and drawing 2 are referred to, it connects with the network interface 31 connected to the network 20, and a network interface 31, and the power control unit 30 has the signal detecting element 32 which detects the STB ON signal S12 and the STB OFF signal S13, the counter 33 connected to the signal detecting element 32, and the power control section 34 connected to the counter 33.

[0033] A counter 33 holds the counted value of "0" in first stage, answers the STB ON signal S12 and the STB off signal S13, and counts up and counts down counted value, respectively.

[0034] The power control section 34 has the threshold S of a larger integer smaller than all the number of STB than "0." According to the operation number of STB, and the number of a required VOD server, as for this threshold S, two or more values are set up suitably.

[0035] When a threshold is set to S for the number of a VOD server required since it corresponds to the number of STB which is working the value Q which lengthened the value M which exists as an example of the setting approach of a threshold S in order to give allowances from the permissible capacity P per VOD server (capacity which shows whether it can respond to how many sets of STBs), and now at the

capacity of N and a VOD server, how to set up like S=NQ can consider. That is, two or more thresholds S are set up according to the number of a VOD server required since it corresponds to STB under operation.

[0036] the case where in the case of the above-mentioned setting approach set permissible capacity P to "50" and M is set to 10 -- Q -- "40" -- becoming -- the value of N -- responding -- as a threshold S -- "40", "80", and "120" ... is set up. And since N is set to 2 when "40" is chosen as a threshold S and the operation number of STB is 60, since N is set to 1 when the operation number of STB is 30, "80" is chosen as a threshold S.

[0037] The setting approach of the above-mentioned threshold S is an example to the last, and other approaches are possible for it.

[0038] Before the counted value of the above-mentioned counter 33 reaches the threshold S according to the operation number of current STB, and the operation number of a VOD server, the VOD server which is carrying out current operation sends out the power control section 34 to the VOD server under operation [ 1 / which is changed into the condition that said server power was supplied / current supply signal S14-]. If said counted value reaches a threshold S, while sending out current supply signal S14-1 to the VOD server under operation, the VOD server which should newly add and should work sends out current supply signal S14-1 changed into the condition that said server power was supplied to the above-mentioned VOD server which should carry out operation. For this reason, the power control section 34 has the power control directions section 34-1 and the power control signal output part 34-2 so that it may explain in full detail behind.

[0039] For example, when only the 1st VOD server 40-1 is working, before counted value reaches a threshold S If current supply signal S14-1 changed into the condition that said server power was supplied to the 1st VOD server 40-1 is sent out to the 1st VOD server 40-1 and said counted value reaches a threshold S While sending out the 1st current supply signal S14-1 to the 1st VOD server 40-1, the 2nd VOD server 40-2 which should newly work sends out current supply signal S14-1 changed into the condition that said server power was supplied to the 2nd VOD server 40-2.

[0040] Further, before said counted value reaches a threshold S, the power control section 34 If it sends out to the request control unit 50 by making into the request allocation control signal S15 the notice signal which notifies that the VOD server under current operation is in operating status to the request control unit 50 and said counted value reaches a threshold S It also sends out to the request control unit 50 by making the notice signal which notifies that all the VOD servers under operation containing the VOD server which newly worked are in operating status to the request control unit 50 into the request allocation control signal S15. For this reason, the power control section 34 has the request allocation indicating mechanism 34-3 explained in full detail behind.

[0041] When only the 1st VOD server 40-1 is working, for example, the power control section 34 Before said counted value reaches a threshold S, it sends out to the request control unit 50 by making into the request allocation control signal S15 the notice signal which notifies that the VOD server 40-1 under current operation is in operating status to the request control unit 50. If said counted value reaches a threshold S It also sends out to the request control unit 50 by making the notice signal which notifies that the VOD server 0-1 and the VOD server 40-2 which newly worked are in operating status to the request control unit 50 into the request allocation control signal S15.

[0042] The power control section 34 sends out the request allocation control signal S15 as a notice signal to the request control unit 50 while sending out current supply signal S14-1 to all the VOD servers under operation, respectively unless said counted value is less than a threshold S after said counted value reaches a threshold S.

[0043] After said counted value reaches a threshold S, the power control section 34 the number N of the VOD server which needs said counted value one moreover, when less than the threshold S at the time of reducing The instruction signal which orders for henceforth at that time to forbid transmission of the data distribution demand signal S11 over the VOD (operation should be stopped) server which should suspend current supply to the request control unit 50 It sends out to the request control unit 50 as a request allocation control signal S15.

[0044] The VOD server which should suspend current supply outputs the completion signal S16 of processing to the request control unit 50, when the distribution of distribution data to all request signals is completed. The request control unit 50 sends out the powering-off enabling signal S17 with which a halt of supply of the server power to the VOD server which should suspend current supply is permitted to the power control section 34, if the completion signal S16 of processing is received.

[0045] The power control section 34 sends out current supply stop signal S14-2 for suspending supply of the server power to the VOD server which should suspend current supply to the VOD server concerned instead of current supply signal S14-1, if the powering-off enabling signal S17 is obtained. For this reason, the power control section 34 has the power control signal output part 34-2 which mentions later.

[0046] Hereafter, the VOD system constituted as mentioned above is further explained to a detail.

[0047] In drawing 1 , this VOD system has two or more STB 10-1 which has the function to transmit video regenerative function signals, such as a playback indication signal of a video data, and a stop signal, - 10-n. STB 10-1 - 10-n have the signal transmitting section 11-1 which transmits the STB ON signal S12 and the STB off signal S13 - 11-n, respectively.

[0048] Video-file equipment 80 stores the video data. Two or more VOD servers 40-1 - 40-m are sharing the video file of video-file equipment 80. The request control unit 50 decodes the signal sent from STB 10-1 - 10-n through the network 20, and performs distribution of a video data, and deterrent control and a deterrent monitor to two or more VOD servers 40-1 - 40-m. The video-data distribution control cable 70 distributes distribution of a video data, and a deterrent control signal to two or more VOD servers 40-1 - 40-m from the request control unit 50.

[0049] The power control unit 30 performs two or more power-source ON and off control of the VOD server 40-1 - 40-m so that the VOD server 40-1 of the number according to the number of STB which is interlocked with the request control unit 50 and is working - 40-m may be started. The power control cable 60 transmits said 1st [ the ], the 2nd [ said ] current supply signal S14-1, and current supply stop signal S14-2 to two or more VOD servers 40-1 - 40-m from the power control unit 30.

[0050] In drawing 2 , the power control unit 30 has the signal detecting element 32 which detects STB ON S12 signal and the STB OFF signal S13 which are transmitted from a network interface 31, and STB 10-1 - 10-n.

[0051] A counter 33 answers the STB ON signal S12, is counted up, answers the STB off signal S13, and is counted down.

[0052] The request allocation indicating mechanism 34-3 transmits the request allocation control signal S15 notified that it does not notify which is the VOD server by which power-source ON was carried out, or the request signal of a video data is not sent to the VOD server 4 which transmitted current supply stop signal S14-2 to the request control unit 50.

[0053] The power control directions section 34-1 directs the power source of which VOD server 40-1 - 40-m is turned on / turned off by computing the number of VOD servers with which are satisfied of the engine performance corresponding to the operation number of STB, and comparing counted value with a threshold.

[0054] The power control signal output part 34-2 outputs current supply signal S14-1 which notifies power-source ON or off directions to the VOD server 40-1 - 40-m through the power control cable 60, or current supply stop signal S14-2.

[0055] The power source will always be turned on of the power source of the power control unit 30.

[0056] The power control signal output part 34-2 outputs current supply stop signal S14-2 to a VOD server to carry out powering off to turn off the power source of the VOD server 40-1 which is working - 40-m, after receiving the powering-off enabling signal S17 which notifies what powering-off preparation of a VOD server to carry out power-source OFF was able to carry out from the request control unit 50.

[0057] Here, the control action of the power control unit 30 of the above-mentioned VOD system is explained according to the flow chart of drawing 3 .

[0058] The power control unit 30 computes the number of STB in operating status, and the number of

the VOD server in the operating status corresponding to it, and sets up the threshold S suitable for the number of STB which is in operating status from two or more thresholds S based on the setting approach mentioned above, and the number of the VOD server in the operating status corresponding to it (step 301).

[0059] Next, if the STB ON signal S12 from STB is detected by the signal detecting element 32 (step 302), a counter 33 will be counted up (step 303) and it will judge whether the counted value reached the threshold S (step 304).

[0060] Since it is necessary to increase the operation number of a VOD server when counted value reaches a threshold S, current supply signal S14-1 is sent out from the power control section 34 to the VOD server which should newly work (step 305). Moreover, it sends out to the request control unit 50 by making into the request allocation control signal S15 the notice signal which notifies that the VOD server under operation containing the VOD server which sent out current supply signal S14-1 is in operating status (step 306).

[0061] When counted value reaches a threshold S and works a new VOD server, a new threshold is set up at step 301. ) program

[0062] If the STB off signal S13 from STB is detected by the signal detecting element 32 (step 307), a counter 33 will be counted down (step 308) and it will judge whether it was less than the threshold S when the counted value reduces the number N of a required VOD server by one (step 309).

[0063] Since it is necessary to reduce the operation number of a VOD server when less than the threshold S when counted value reduces the number N of a required VOD server by one, the instruction signal which orders the request control unit 50 to forbid transmission of the data distribution demand signal S11 over the VOD (operation should be stopped) server which should suspend current supply is sent out to the request control unit 50 as a request allocation control signal S15 (step 310).

[0064] If the VOD server which should suspend current supply ends the distribution of distribution data to all request signals and outputs the completion signal S16 of processing to the request control unit 50, the powering-off enabling signal S17 with which a halt of supply of the server power from the request control unit 50 which received the completion signal S16 of processing to the VOD server which should suspend current supply is permitted will be sent out to the power control section 34.

[0065] If it judges whether the power control section 34 received the powering-off enabling signal S17 (step 311) and the powering-off enabling signal S17 is received, current supply stop signal S14-2 for suspending supply of the server power to the VOD server which should suspend current supply are sent out to the VOD server which corresponds instead of current supply signal S14-1 (step 312).

[0066] When it is less than the threshold S when counted value reduces the number N of a required VOD server by one as mentioned above and operation of a VOD server is stopped, the threshold in comparison with the above-mentioned counted value is set up as a new threshold at step 301.

[0067] In order for the permissible capacity ability P per set of the VOD server 40-1 - 40-m to enable correspondence in STB to 50 sets and to give allowances hereafter to the engine performance of the VOD server 40-1 - 40-m in drawing 1 , For example, when the number of STB 10-1 which worked - 10-n is set to 40, the case where power control is carried out so that powering on may be directed to the 2nd set of VOD servers is explained. That is, it is above-mentioned S=NQ about a threshold S, and is the case where M is set up as 10.

[0068] In Fig. 1, only the VOD server 40-1 shall work and the power source shall be turned off to the VOD server 40-2 - 40-m. the threshold [ S=N / (50-10) ] "40" according to the number N of a required VOD server, "80", and "120" -- "40" is set up as a threshold 40 from ... [ in this case, ]

[0069] If the power source of STB 10-1 is switched on and OS starts, STB 10-1 will transmit the STB ON signal S12 which notifies that it would be in operating status to the power control unit 30 through a network 20. The power control unit 30 detects this STB ON signal S12, and presupposes that the counter 33 counted up and it was judged that starting of STB 10-1 was the 40th set. In this case, since counted value reached "40" set up as a threshold S, the power control unit 30 transmits current supply signal S14-1 so that a power source may be turned on to the 2nd set of the VOD servers 40-2.

[0070] In this case, since the number N of the VOD server in operating status is set to 2, "80" is set up as

a new threshold S. And this condition continues until the operation number of STB (counted value) is set to "80."

[0071] On the contrary, where counted value was set to 40 and "80" is set up as a threshold S Since it is less than "40" of the threshold S when counted value reduces the number N of a required VOD server by one when the power source of STB 10-1 is turned off and counted value is set to "39" at a down count The request allocation control signal S15 notified that the video-data distribution demand signal S11 is not sent to the request control unit 50 from the power control unit 30 to the VOD server 40-2 to carry out powering off is transmitted. When receiving the completion signal S16 of processing which shows that transmitting processing of the video data to all requests was completed from the VOD server 40-2 to carry out powering off of the request control unit 50 The powering-off enabling signal S17 with which powering off of the VOD server 40-2 to carry out powering off to the power control unit 30 is permitted is transmitted. If it checks that the power control unit 30 has received the powering-off enabling signal S17, the power control unit 30 will output current supply stop signal S14-2 to the VOD server 40-2 to carry out powering off.

[0072] And since the number N of the VOD server which is in operating status in this case is set to 1, "40" is set up as a new threshold S.

[0073] If the number of the VOD servers which work is controlled by the above-mentioned example to become the  $N+1$  number of the need, the system which gave high-reliability more is realizable. That is, it could be understood easily that the system which gave high-reliability more is realizable by setting up a threshold S as  $Q(N+1)$ .

[0074] Although the desirable operation gestalt was raised above and this invention was explained, this invention is not necessarily limited to the above-mentioned operation gestalt. For example, although this operation gestalt took the VOD system for the example, even when the data to distribute are not a video data, it is clear. [ with applicable this invention ]

[0075]

[Effect of the Invention] As explained above, according to this invention, the on-demand system which can control automatically power-source turning on and off (injection cutting) of a server on demand according to the number of terminals which is working can be obtained. Consequently, while the operational administration of a server on demand becomes easy, reduction of employment cost can also be aimed at, and the dependability of a server on demand can also be improved easily.

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[Translation done.]

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## CLAIMS

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### [Claim(s)]

[Claim 1] On-demand system which makes one of two or more of the demanded terminals of said distribute the distribution data according to said demand to one of said the servers on demand which have two or more terminals and one pin center,large equipment which are characterized by providing the following, and said pin center,large equipment has two or more servers on demand and request control units, and have said request control unit in said operating status according to the demand of the service on demand from said terminal It is a count means to count down with the off signal transmitted from said terminal which said pin center,large equipment was equipped with the power control unit which performs power-source ON and off control of said server on demand according to the number of said terminal which is working, counted up said power control unit with the ON signal transmitted from said terminal which started operation, and stopped operation. A power control means to stop the current supply to said server on demand which has a threshold according to the number of said terminal under operation, and the number of said required server on demand, should supply a power source to said server on demand which should newly work by comparing said counted value and said threshold, and should stop operation

[Claim 2] Each of two or more of said terminals is on-demand system according to claim 1 characterized by having a signal transmitting means to transmit said ON signal to said pin center,large equipment when supply of the power of said terminal is started, and to transmit said off signal to said pin center,large equipment when supply of said power is suspended.

[Claim 3] Said power control means is on-demand system according to claim 1 characterized by sending out the current supply stop signal for suspending supply for power to said server on demand which should stop operation, when the current supply signal for supplying power to said server on demand which should newly work if said counted value reaches said threshold is sent out and said counted value is less than said threshold.

[Claim 4] Said pin center,large equipment is connected to said two or more servers on demand, and it has file equipment which has memorized are recording data as file data. One of said the servers on demand in said operating status If said data distribution demand is received from said request control unit On-demand system according to claim 1 characterized by distributing to said terminal which required the distribution data which found said distribution data according to said demand out of the file data memorized by said file equipment.

[Claim 5] Before said counted value reaches said threshold, said power control means Send out the notice signal which notifies said server on demand in a current working state to said request control unit, and said counted value reaches said threshold. On-demand system according to claim 1 characterized by sending out the notice signal which notifies said server on demand under [ all / containing said server on demand which newly worked ] operation to said request control unit when said server on demand is newly worked.

[Claim 6] Said power control means is on-demand system according to claim 1 characterized by sending out the instruction signal which forbids transmission of said data distribution demand to said server on

demand which stopped operation to said request control unit when said counted value is less than said threshold and stops operation of said server on demand.

[Claim 7] When said counted value is less than said threshold, said power control means the instruction signal which forbids transmission of said data distribution demand to said server on demand which should stop operation It sends out to said request control unit. Said request control unit When the completion signal of processing which shows that the distribution of said distribution data to all demands was completed is received from said server on demand which should stop operation The powering-off enabling signal with which a halt of supply of the power to said server on demand which should stop operation is permitted is sent out to said power control means. Said power control means On-demand system according to claim 1 characterized by sending out the power supply interruption signal which suspends supply of the power to said server on demand which should stop operation if said powering-off enabling signal is obtained.

[Claim 8] Based on the number of said server [ required since said power control means corresponds to the number of the permissible capacity over said terminal per said server on demand, and said terminal which is working now as said threshold ] on demand, it has two or more values. First The threshold suitable for the number of said terminal in operating status and the number of the server on demand in the operating status corresponding to it is set up. If said threshold and counted value which were set up are compared and said counted value reaches said threshold when said count means counts up counted value the current supply signal for supplying power to said server on demand which should newly work is sent out -- both If the threshold and counted value at the time of reducing the number of a required server on demand by one are compared and said counted value is less than said threshold when said threshold is newly set up and said count means counts down counted value On-demand system according to claim 1 characterized by setting said threshold as the threshold at the time of reducing the number of a required server on demand by one while sending out the current supply stop signal for suspending supply for power to said server on demand which should stop operation.

[Claim 9] On-demand system according to claim 8 characterized by setting up the value which hung the number [ required for the value which lengthened the value which exists in order to give allowances as said threshold from the permissible capacity over said terminal per said server on demand since it corresponds to the number of said terminal which is working ] on demand.

[Claim 10] Based on the number of said server [ required since said power control means corresponds to the number of the permissible capacity over said terminal per said server on demand, and said terminal which is working now as said threshold ] on demand, it has two or more values. First The threshold suitable for the number of said terminal in operating status and the number of the server on demand in the operating status corresponding to it is set up. If said threshold and counted value which were set up are compared and said counted value reaches said threshold when said count means counts up counted value the current supply signal for supplying power to said server on demand which should newly work is sent out -- both If the threshold and counted value at the time of reducing the number of a required server on demand by one are compared and said counted value is less than said threshold when said threshold is newly set up and said count means counts down counted value The instruction signal which forbids transmission of said data distribution demand to said server on demand which should stop operation is sent out to said request control unit. Said request control unit When the completion signal of processing which shows that the distribution of said distribution data to all demands was completed is received from said server on demand which should stop operation The powering-off enabling signal with which a halt of supply of the power to said server on demand which should stop operation is permitted is sent out to said power control means. Said power control means If said powering-off enabling signal is obtained, while sending out the power supply interruption signal which suspends supply of the power to said server on demand which should stop operation On-demand system according to claim 1 characterized by setting said threshold as the threshold at the time of reducing the number of a required server on demand by one.

[Claim 11] On-demand system according to claim 10 characterized by setting up the value which hung the number [ required for the value which lengthened the value which exists in order to give allowances

as said threshold from the permissible capacity over said terminal per said server on demand since it corresponds to the number of said terminal which is working ] on demand.

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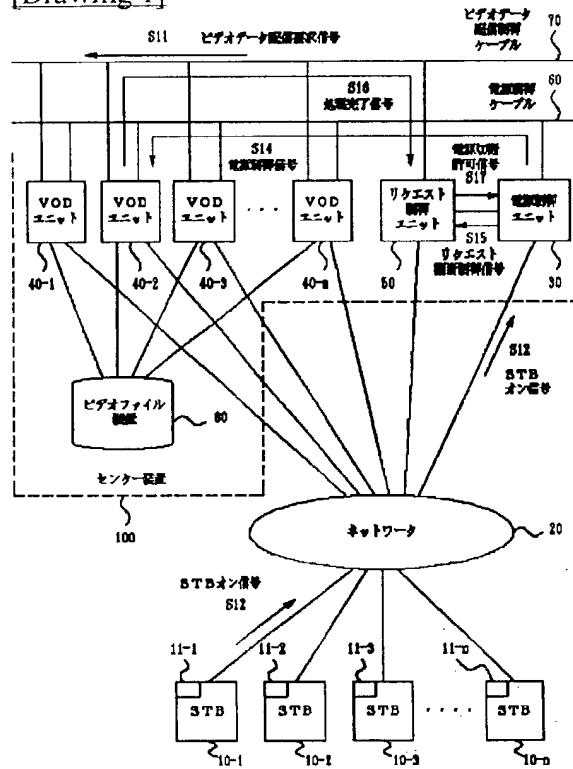
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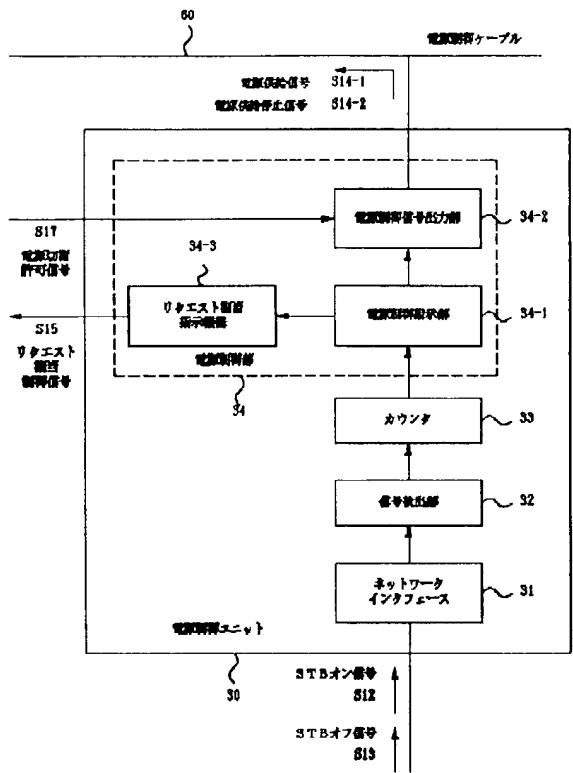
DRAWINGS

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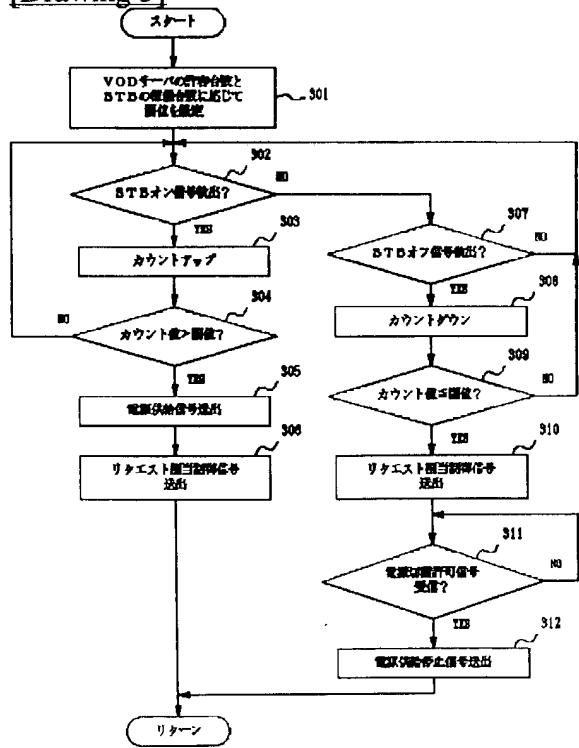
[Drawing 1]



[Drawing 2]



[Drawing 3]



[Translation done.]